What is claimed is:

1. A GPS (Global Positioning System) microstrip antenna mounted on a projectile comprising:

(a) a first rectangular shaped dielectric layer;

(b) a plurality of square shaped antenna elements mounted on an upper surface of said first dielectric layer, said antenna elements being aligned with one another and fabricated from copper, each of said antenna elements being positioned at an angle of approximately forty five degrees on said first dielectric layer, said antenna elements being adapted to receive GPS (Global Positioning System) data at a frequency of approximately 1.575 GHz;

(c) an antenna feed network mounted on a bottom surface of said first dielectric layer, said antenna feed network having a main transmission line connected to a signal output for said GPS microstrip antenna, said feed network having a plurality of branch transmission lines connected to said main transmission line and each of said antenna elements, each of said branch transmission lines including a pair of probes positioned perpendicular to one another underneath one antenna element of said plurality of antenna elements, one of said pair of probes for each of said branch transmission lines having a length

substantially greater than the other of said pair of probes for each of said branch transmission lines to provide for a ninety degree relative phase shift between RF signals transmitted through said pair of probes for each of said pair of branch transmission lines resulting in a circular polarization and an omni-directional radiation pattern being generated by said antenna elements of said GPS microstrip antenna;

(d) a pair of identical filters integrally formed within said main transmission line, said pair of identical filters isolating GPS radio frequency signals from TM band signals over a frequency range from about 2 GHz to about 7 GHz;

(e) a diode limiter connected to said main transmission line in proximity to said signal output for said feed network; and

(f) an amplifier connected to said main transmission line in proximity to said signal output for said feed network, said diode limiter and said amplifier providing for an overall gain of approximately 27 decibels.

2. The GPS microstrip antenna of claim 1 further comprising a continuous gap formed around first, second, third and fourth sides of each of said antenna elements, said

continuous gap for each of said antenna elements having an electric field generated by said antenna element confined to said continuous gap.

3. The GPS microstrip antenna of claim 2 further comprising a copper plated ground mounted on a remaining portion of the upper surface of said first dielectric layer around the continuous gap for each of said antenna elements.

4. The GPS microstrip antenna of claim 3 further comprising a second dielectric layer positioned below said first dielectric layer in alignment with said first dielectric layer, said second dielectric having a ground plane mounted on a bottom surface thereof.

5. The GPS microstrip antenna of claim 4 wherein said copper plated ground mounted on the upper surface of said first dielectric layer is connected to the ground plane mounted on the bottom surface of said second dielectric layer by a plurality of vias which pass from said copper plated ground through said first dielectric layer and said second dielectric

layer to said ground plane.

6. The GPS microstrip antenna of claim 1 wherein said pair of identical filters each comprise a 5-Section Band Stop Filter and a 7-Section Low Pass Filter.

7. The GPS microstrip antenna of claim 1 wherein each of said antenna elements includes a pair of tuning stubs located on adjacent sides of said antenna element, said pair of tuning stubs for each of said antenna elements allowing said antenna elements to be fine tuned to an operating frequency for said GPS microstrip antenna.

8. The GPS microstrip antenna of claim 1 wherein said signal output for said feed network comprises a fifty ohm signal output for said feed network.

9. The GPS microstrip antenna of claim 4 wherein said dielectric layer comprises a circuit board and said second dielectric layer comprises a ground board, said circuit board and said ground board each having an overall dimension of 5.7 inches in width and approximately 27 inches in length.

10. A GPS (Global Positioning System) microstrip antenna mounted on a projectile comprising:

(a) a first rectangular shaped dielectric layer;

(b) a plurality of square shaped antenna elements mounted on an upper surface of said first dielectric layer, said plurality of antenna elements being aligned with one another and fabricated from copper, each of said plurality of antenna elements being positioned at an angle of approximately forty five degrees on said first dielectric layer, said plurality of antenna elements being adapted to receive GPS (Global Positioning System) data at a frequency of approximately 1.575 GHz;

(c) each of said plurality of antenna elements including a pair of tuning stubs located on adjacent sides of said antenna element, said pair of tuning stubs for each of said plurality of antenna elements allowing said plurality of antenna elements to be fine tuned to an operating frequency for said GPS microstrip antenna;

(d) an antenna feed network mounted on a bottom surface of said first dielectric layer, said antenna feed network having a main transmission line connected to a signal output for said

GPS microstrip antenna, said feed network having a plurality of branch transmission lines connected to said main transmission line at one end thereof, the opposite end of each of said branch transmission lines including a pair of probes positioned perpendicular to one another underneath one antenna element of said plurality of antenna elements, one of said pair of probes for each of said branch transmission lines having a length substantially greater than the other of said pair of probes for each of said branch transmission lines to provide for a ninety degree relative phase shift between RF signals transmitted through said pair of probes for each of said pair of branch transmission lines resulting in a circular polarization and an omni-directional radiation pattern being generated by said plurality of antenna elements of said GPS microstrip antenna;

(e) a pair of identical filters integrally formed within said main transmission line, said pair of identical filters isolating GPS radio frequency signals from TM band signals over a frequency range from about 2 GHz to about 7 GHz, each of said pair of filters including a low pass filter and a band stop filter;

(f) a diode limiter connected to said main transmission line in proximity to said signal output for said feed network;

(g) an amplifier connected to said main transmission line in proximity to said signal output for said feed network, said diode limiter and said amplifier providing for an overall gain of approximately 27 decibels; and

(h) a second dielectric layer positioned below said first dielectric layer in alignment with said first dielectric layer, said second dielectric layer having a ground plane mounted on a bottom surface thereof.

11. The GPS microstrip antenna of claim 10 further comprising a continuous gap formed around first, second, third and fourth sides of each of said plurality of antenna elements, said continuous gap for each of said plurality of antenna elements having an electric field generated by said antenna element confined to said continuous gap.

12. The GPS microstrip antenna of claim 11 further comprising a copper plated ground mounted on a remaining portion of the upper surface of said first dielectric layer around the continuous gap for each of said plurality of antenna elements.

13. The GPS microstrip antenna of claim 12 wherein said copper plated ground mounted on the upper surface of said first dielectric layer is connected to the ground plane mounted on the bottom surface of said second dielectric layer by a plurality of vias which pass from said copper plated ground through said first dielectric layer and said second dielectric layer to said ground plane.

14. The GPS microstrip antenna of claim 10 wherein said band stop filter for each of said pair of identical filters comprises a 5-Section Band Stop Filter and said low pass filter for each of said pair of identical filters comprises a 7-Section Low Pass Filter.

15. The GPS microstrip antenna of claim 10 wherein said signal output for said feed network comprises a fifty ohm signal output for said feed network.

16. The GPS microstrip antenna of claim 10 wherein said dielectric layer comprises a circuit board and said second dielectric layer comprises a ground board, said circuit board and said ground board each having an overall dimension of 5.7

inches in width and approximately 27 inches in length.

17. A GPS (Global Positioning System) microstrip antenna mounted on a projectile comprising:

(a) a first rectangular shaped dielectric layer;

(b) eight square shaped antenna elements mounted on an upper surface of said first dielectric layer, said eight antenna elements being aligned with one another and fabricated from copper, each of said eight antenna elements being positioned at an angle of approximately forty five degrees on said first dielectric layer, said eight antenna elements being adapted to receive GPS (Global Positioning System) data at a frequency of approximately 1.575 GHz;

(d) each of said eight antenna elements including a pair of tuning stubs located on adjacent sides of said antenna element, said pair of tuning stubs for each of said eight antenna elements allowing said eight antenna elements to be fine tuned to an operating frequency for said GPS microstrip antenna;

(e) an antenna feed network mounted on a bottom surface of said first dielectric layer, said antenna feed network having a main transmission line connected to a signal output for said

GPS microstrip antenna, said feed network having a plurality of branch transmission lines connected to said main transmission line at one end thereof, the opposite end of each of said branch transmission lines including a pair of probes positioned perpendicular to one another underneath one antenna element of said eight antenna elements, one of said pair of probes for each of said branch transmission lines having a length substantially greater than the other of said pair of probes for each of said branch transmission lines to provide for a ninety degree relative phase shift between RF signals transmitted through said pair of probes for each of said pair of branch transmission lines resulting in a circular polarization and an omni-directional radiation pattern being generated by said eight antenna elements of said GPS microstrip antenna;

(f) a pair of identical filters integrally formed within said main transmission line, said pair of filters isolating GPS radio frequency signals from TM band signals over a frequency range from about 2 GHz to about 7 GHz, each of said pair of filters including a 7-section low pass filter and a 5-section band stop filter;

(g) a diode limiter connected to said main transmission line in proximity to said signal output for said feed network;

(h) an amplifier connected to said main transmission line in proximity to said signal output for said feed network, said diode limiter and said amplifier providing for an overall gain of approximately 27 decibels; and

(i) a second dielectric layer positioned below said first dielectric layer in alignment with said first dielectric layer, said second dielectric layer having a ground plane mounted on a bottom surface thereof.

18. The GPS microstrip antenna of claim 17 further comprising a continuous gap formed around first, second, third and fourth sides of each of said eight antenna elements, said continuous gap for each of said eight antenna elements having an electric field generated by said antenna element confined to said continuous gap.

19. The GPS microstrip antenna of claim 18 further comprising a copper plated ground mounted on a remaining portion of the upper surface of said first dielectric layer around the continuous gap for each of said plurality of antenna elements.

20. The GPS microstrip antenna of claim 20 wherein said copper plated ground mounted on the upper surface of said first dielectric layer is connected to the ground plane mounted on the bottom surface of said second dielectric layer by a plurality of vias which pass from said copper plated ground through said first dielectric layer and said second dielectric layer to said ground plane.